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10/809,036	03/25/2004	Neil Andrew Simpson	CRUI/0011	5819

7590 11/05/2009  
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EXAMINER
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SULLIVAN, DEBRA M

ART UNIT	PAPER NUMBER
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3725

MAIL DATE	DELIVERY MODE
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11/05/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,036	<b>Applicant(s)</b> SIMPSON ET AL.	
	<b>Examiner</b> DEBRA M. SULLIVAN	<b>Art Unit</b> 3725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 8, 11, 16, 27, 33, 35, 36, 39, 40, 46, 49, 82 and 92-94 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Continuation of Disposition of Claims: Claims pending in the application are 1-3,5-21,26-41,43,44,46,48-55,82-86-90-101,103-105,107-109 and 111-115.

Continuation of Disposition of Claims: Claims rejected are 1-3,5-7,10,12-15,17,18,21,26,28-32,34,37,38,41,43,44,48,50-55,83-86,90,91,95-101,103-109 and 111-115.

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5-7, 9, 10, 12-15, 17, 18, 20, 21, 26, 28-31, 34, 38, 41, 43, 44, 48, 50-55, 90, 91, 95 and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Lucia et al (US 2006/0108123) in view of Bolt (GB 1349134). De Lucia et al discloses a method of expanding tubing, the method comprising locating an expansion device (202) on a workstring (204) in tubing (208) to be expanded, wherein the workstring extends from a surface of a wellbore (24), vibrating at least one of the expansion device (202) and the tubing (208), and translating the expansion device (202) relative to the tubing (208) by applying a constant driving force to the expansion device (202) via the workstring thereby expanding the tubing (208) [See paragraphs 0030-0033]. De Lucia et al further discloses the vibration is created by fluid flow. De Lucia et al discloses the invention substantially as claimed except for wherein the vibration is created by injecting gas into fluid. However Bolt teaches of creating a vibration through the injection of pressurized gas (air gun repeater 20) into fluid (18) operatively associated with the work piece (i.e. the ground) in order to transmit vibration to the work piece (i.e. ground) [see abstract & pg 4 lines 35-43]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the fluid flow vibration of De Lucia et al with the gas injection vibration as taught by Bolt in order to obtain the predictable result of

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providing a efficient and easily controllable vibration within the tubing during expansion [*KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1396 (2007)]

In reference to claims 2 and 3, De Lucia et al further discloses the vibration of the at least one of the tubing (208) and the expansion device (202) to minimize static friction between contacting surfaces of the expansion device (202) and the tubing (208) [See paragraph 0033].

In reference to claim 5, De Lucia et al further discloses the driving force remains constant as the expansion device (202) is translated through the tubing (208) [See paragraph 0032].

In reference to claim 6, the combination of De Lucia et al and Bolt further discloses a direction of the vibration is multi-directional [see Bolt pg. 7 lines 61-64].

In reference to claims 7, 9, 10, 12-15 and 18, De Lucia et al further discloses the expansion device (202) being subject to vibration in addition to the tubing (208) being subject to vibration that induces physical movement of the tubing [See paragraph 0033].

In reference to claim 17, The combination of De Lucia et al and Bolt further discloses the vibration takes the form of at least one wave traveling through at least one of the expansion device (202) and the tubing (208).

In reference to claim 20, Bolt further discloses creating the vibration with a moving mass (fluid) [see pg. 4 lines 35-43].

In reference to claim 21, De Lucia et al further discloses providing a varying restriction through at least one of the expansion device (202).

In reference to claim 26, De Lucia et al discloses a source of vibration (206) is coupled to the tubing (208), as seen in figure 3a

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In reference to claim 28, the source of vibration (206) is indirectly coupled to the expansion device (202) through the tubular (208).

In reference to claims 29-31, 34, 38, 41, De Lucia et al further discloses the amplitude and the frequency to be constant thus forming a constant vibration [See paragraph 0033].

In reference to claims 43 and 44, the driving force is a mechanical driving force that provides a pushing force on the expansion device (202) [See paragraph 0032].

In reference to claims 48 and 50, De Lucia et al further discloses the expansion device (202) is translated axially relative to the tubing (208) thus creating a localized compressive yield in the tubing wall, as see in figure 3a.

In reference to claim 51, De Lucia et al further discloses the expansion device (202) comprises of a varying diameter, as seen in figure 3a.

In reference to claims 52-54, De Lucia et al further discloses creating a pressure differential across a wall of the tubing (208) that is varied and cycled.

In reference to claim 55, De Lucia et al further discloses isolating a volume of fluid containing the expansion device (202).

In reference to claims 90 and 91, De Lucia et al discloses inserting the tubing (208) into a wellbore prior to translating the expansion device (202) relative to the tubing (208) [See paragraph 0032].

In reference to claim 95, De Lucia et al further discloses the driving force remains constant as the expansion device (202) is translated through the tubing (208) [See paragraph 0032].

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In reference to claim 112, the tubing of De Lucia et al is plastically deformed to a larger diameter when expanding the tubing (208), as seen in figure 3a.

2. Claim 32 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Lucia et al in view of Bolt as applied to claim 1 above, and further in view of Burge (US 2005/0145390). The combination of De Lucia et al and Bolt discloses the invention substantially as claimed except for wherein the vibration is greater than 100 Hz. However, Burger teaches that the frequency typically depends upon the size and type of tubing and therefore it may be necessary to adjust the frequency of the vibrations accordingly. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the range of the frequency of De Lucia et al to be greater than 100 Hz or within a range of 1 to 100 Hz, since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation [*In re Aller*, 105 USPQ 233].

3. Claims 83, 84, 96-101, 103 and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Lucia et al in view of Schmidt Jr. et al (US Patent # 3,867,291). De Lucia et al discloses a method of expanding tubing (208), the method comprising the steps of locating an expansion device (202) in tubing (208) to be expanded, vibrating at least one of the tubing (208) and the expansion device (202), translating the expansion device (202) relative to the tubing (208) thereby expanding the tubing (208) [See paragraphs 0030-0033]. De Lucia et al further discloses the vibration is created by varying the flow rate of fluid operatively associated with at least one tubing (208) and expansion device (202). De Lucia discloses the invention substantially as claimed except for wherein the vibration is created by varying a pressure of fluid.

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However, Schmidt Jr. et al teaches of varying a frequency of vibration by varying the pressure of a fluid supplied thereto in order to create a vibration with varying frequencies [see claim 5]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the varying flow rate vibration of De Lucia et al with the varying pressure vibration as taught by Schmidt Jr. et al in order to obtain the predictable results of creating a vibration with a fluid [*KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1396 (2007)]

In reference to claims 96 and 97, De Lucia et al further discloses the tubing is inserted into a wellbore (24) prior to translating the expansion device (202) relative to the tubing (208).

In reference to claims 98 and 99, De Lucia et al further discloses a driving force is applied to translate the expansion device (202) through the tubing (208) wherein the driving force remains constant [See paragraph 0032].

In reference to claim 113, the tubing of De Lucia et al is plastically deformed to a larger diameter when expanding the tubing (208), as seen in figure 3a.

In reference to claim 84, De Lucia et al discloses a method of expanding tubing (208), the method comprising the steps of locating an expansion device (202) in tubing (208) to be expanded wherein the expansion device is coupled to a workstring (204), vibrating at least one of the tubing (208) and the expansion device (202), moving the workstring (204) and the expansion device (202) relative to the tubing by applying a constant driving force thereby expanding the tubing (208) to a larger diameter[See paragraphs 0030-0033]. De Lucia et al further discloses the vibration is created by varying the flow rate of fluid operatively associated with at least one tubing (208) and expansion device (202). De Lucia discloses the invention substantially as



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claimed except for wherein the vibration is created by pressure pluses in the fluid. However, Schmidt Jr. et al teaches of varying a frequency of vibration by varying the pressure of a fluid supplied thereto in order to create a vibration with varying frequencies [see claim 5, it is noted that the examiner is interpreting the variation of the pressure of the fluid to be pressure pluses in the fluid]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the varying flow rate vibration of De Lucia et al with the pressure pulses vibration as taught by Schmidt Jr. et al in order to obtain the predictable results of creating a vibration with a fluid [*KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1396 (2007)].

In reference to claims 100 and 101, De Lucia et al further discloses the tubing is inserted into a wellbore (24) prior to translating the expansion device (202) relative to the tubing (208).

In reference to claim 103, De Lucia et al further discloses the driving force remains constant as the expansion device (202) is translated through the tubing (208) [See paragraph 0032].

In reference to claim 115, De Lucia et al discloses a method of expanding tubing (208), comprising the steps of isolating a portion of the tubing (208) containing an expansion device (202), and expanding the isolated portion of tubing utilizing the expansion device (202) [See paragraph 0030-0033 and FIG 3a]. De Lucia et al further discloses the vibration is created by varying the flow rate of fluid operatively associated with at least one tubing (208) and expansion device (202). De Lucia discloses the invention substantially as claimed except for wherein the vibration is created by varying the base pressure within the tubing. However, Schmidt Jr. et al teaches of varying a frequency of vibration by varying the pressure of a fluid supplied thereto in

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order to create a vibration with varying frequencies [see claim 5, it is noted that the examiner is interpreting the variation of the pressure of the fluid to be varying a base pressure in the tubing]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the varying flow rate vibration of De Lucia et al with the varying base pressure vibration as taught by Schmidt Jr. et al in order to obtain the predictable results of creating a vibration with a fluid [*KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1742, 82 USPQ2d 1385, 1396 (2007)].

4. Claims 85, 86, 104, 105, 107-109, 111 and 114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bateman (US Patent 3,818,734) in view of Burge (US 2005/0145390). In reference to claim 85, Bateman discloses a method of expanding tubing, the method comprising locating an expansion device [see figure 1] on a work string [see col. 2 lines 34-36] in tubing (C) to be expanded, pushing the work string downward to translate the expansion device relative to the tubing thereby expanding the tubing [see col. 3 lines 42-46]. Bateman discloses the invention substantially as claimed except for wherein the expansion device is vibrated. However, Burge teaches of providing a vibration to an expansion device for the purpose of reducing the amount of friction between the expander device and tubing [see paragraph 0009 lines 25-33]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a vibration to the expander of Bateman as taught by Burge in order to reduce the amount of friction between the expander and tubing thereby making the expansion process more efficient and reduces the possibility of the expander becoming stuck.

In reference to claims 104 and 105, Bateman further discloses inserting the tubing (C) into a wellbore prior to translating the expansion device relative to the tubing (C) [it is noted that the tubing has been previously inserted into the wellbore prior to the expansion device being placed into the tubing the expand and straighten the tubing].

In reference to claim 107, Bateman further discloses the driving force remains constant as the expansion device is translated through the tubing (C).

In reference to claim 114, the tubing of Bateman is plastically deformed to a larger diameter when expanding the tubing [see col. 3 lines 42-46].

In reference to claim 86, Bateman discloses a method of expanding tubing, the method comprising locating an expansion device [see figure 1] in tubing (C) to be expanded, wherein the expansion device is in rolling contact with the tubing [see col. 3 lines 42-46], translating the expansion device relative to the tubing (C) by applying a constant downward driving force thereby expanding the tubing [see col. 3 lines 42-46]. Bateman discloses the invention substantially as claimed except for wherein the expansion device is vibrated. However, Burge teaches of providing a vibration to an expansion device for the purpose of reducing the amount of friction between the expander device and tubing [see paragraph 0009 lines 25-33]. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a vibration to the expander of Bateman as taught by Burge in order to reduce the amount of friction between the expander and tubing thereby making the expansion process more efficient and reduces the possibility of the expander becoming stuck.

In reference to claims 108 and 109, Bateman further discloses inserting the tubing (C) into a wellbore prior to translating the expansion device relative to the tubing (C) [it is noted that

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the tubing has been previously inserted into the wellbore prior to the expansion device being placed into the tubing the expand and straighten the tubing].

In reference to claim 111, Bateman further discloses the driving force remains constant as the expansion device is translated through the tubing (C).

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 83-86 and 115 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Debra Sullivan whose telephone number is (571) 272-1904. The examiner can normally be reached Monday - Thursday 10am - 8pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dana Ross can be reached at (571) 272-4480. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Debra M Sullivan/  
Examiner, Art Unit 3725

/Dana Ross/  
Supervisory Patent Examiner, Art Unit 3725